FLASHES AND PLUGS

BATTLE OF THE BUGS. The battle of the bugs rages at the Inter-County Telephone Co., Gallatin, Mo., and it looks as though Manager J. M. Roberts is on the losing end.

The pests invaded an apartment over the telephone exchange last summer and, needing *lebensraum*, took the whole building into their sphere of influence.

It's close up and battle them to the death with DDT or scratch away says Mr. Roberts, whose many newspaper friends are ribbing him plenty. He figures 36 hours would do the job, but the unsympathetic Missouri Public Service Commission, when asked to let him close the exchange for that length of time, only grins.

• • •

CHICKEN-HOUSE-OF-MAGIC. In the improved chicken house the electric eye will play an important part in the well being of irresponsible hens, states the magazine *Your Mind*. Invisible light beams will be arranged to sound an alarm of an approaching poultry thief. The eye will also be arranged to turn lights on around the farm at dusk, and to turn them off at dawn. In addition, it will be set to count automatically the hens as they enter their house each night. If there are, say, 50 chickens, the eye will count them one by one, as they come in the door. As soon as number 50 has entered the coop, the door will automatically close, and a bell and green light will signal in the farmer's house that all is well in the hen house.

• • •

SURPRISE! A retired St. Paul, Minn., minister has been given a chance to resume preaching from an easy chair in his home. His congregation telephones him, to its own surprise, for the sermon.

Businessmen in St. Paul return from lunch to find a notation on their desks to telephone Dale 3851. A bartender tells an intoxicated customer someone wants to talk to him at Dale 3851. And no one knows where or how it started, or who started it.

"I believe it was God's will," is the explanation of the Rev. Harley M. Racer, the retired pastor whose telephone is Dale 3851. He receives an average of 100 calls a day. On Saturdays they total more than 150. They often continue until Sunday morning.

"No, no one here called," he answers when the caller inquires. "I don't know how you got my number, but I have a message for you—a message of good news. It's from the Bible—the Gospel of St. John, Chapter III, Verse 16."

Then, if the caller doesn't hang up, he continues:

" 'For God so loved the world that He gave His only begotten Son that those who believe in Him may not perish but may have life everlasting.' There isn't much good news in this world any more. But isn't that good news? Think of it—life everlasting!

"Most persons will listen—even an atheist," the Reverend Racer said. "Only a few are angry."

• • •

BIRTH NOTICE. A blue diaper fluttered from the flagpole of Marty Leuer's home in San Francisco, Calif., and all his neighbors on Telegraph Hill knew that a boy had been born to his wife, Priscilla.

A couple of years ago Mr. Leuer, unofficial "mayor" of Telegraph Hill, unfurled a pink diaper from the flagpole, signaling the birth of a daughter.

TELEPHONY

The Journal of the Telephone Industry

OCTOBER 12, 1946

Contents

INDUSTRY MUST MOVE AS UNIT IN SEEKING RATE INCREASES 9
By Francis X. Welch

THE CATALINA MICROWAVE RADIO-TELEPHONE SYSTEM 12
By Carl Koerner

TELEPHONE SERVICE DOWN MEXICO WAY... 15
By Flora Urquiri

THE PLANT MAN'S NOTEBOOK 22
By Ray Blain

COURTS AND COMMISSIONS 29

MOBILE RADIO-TELEPHONE TO LINK TEXAS CITIES 38

H. D. FARGO, Jr., *President & Advertising Manager*
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INDUSTRY MUST MOVE AS UNIT

In Seeking Rate Increases

By **FRANCIS X. WELCH**
TELEPHONY's Washington Editor

Washington State Independents present joint rate petition to commisssion. . . . However, telephone industry as a whole must join to educate PUBLIC as to need for additional revenue to cover greatly increased expenses.

OFFICIALS of the utilities division of the Office of Price Administration really are concerned over what they fear may be a wave of telephone rate increases. The immediate cause for OPA apprehension, of course, was the application of the Southern Bell company for the statewide business rate increase in North Carolina. (TELEPHONY, September 28, page 58.)

This was followed by unofficial reports that Southern Bell soon might seek rate increases in other states where it serves. It is known, for instance, that Southern Bell officials called in members of the Kentucky Public Service Commission at Frankfort on September 5. Although no public comment was forthcoming following that conference, it is a pretty good speculation that the subject of rates was one of the principal topics of conversation.

Comes now 50 Independent telephone companies in the state of Washington with a *joint* petition for rate increases, filed through their state trade group—the Washington Independent Telephone Association. This, incidentally, is an interesting use of the service and function of a state association, the results of which surely will be watched closely by other state associations. Anyway, the very fact that the whole Independent industry in the state of Washington—and not just piecemeal segments of it — is behind this latest move to raise telephone rates got a real rise out of OPA. The OPA promptly filed petition to intervene and it looks like a showdown before the Washington State Department of Public Utilities. Hearings already have begun.

The Washington joint Independent petition did not specify just how much of a rate increase each member or company desired. Following Washington state procedure, they simply asked for permission to file tariffs on less than statutory notice, "which shall have the effect of producing such increases in their exchange revenues as the department shall find necessary to enable the members to operate and rehabilitate their plants, install new equipment, insure financial stability, all to the end that they may render adequate telephone service in the communities which they serve."

The joint application points out that there have been no "general increases" in telephone exchange rates in Washington State, and that the level of such rates is substantially the same as it was in 1919.

What OPA is afraid of is that all these signs point to something which OPA hoped to postpone indefinitely. They point to the likelihood that the long, over a quarter-century-old plateau in the general level of telephone rates in the United States finally has come to an end. For months, observers have been speculating as to just how much longer telephone exchange rates could be kept down while wages and other operating costs have been mounting steadily. As in the case of gas and electric utility rates, telephone rates have not increased but have, on the whole, decreased over a period when the price of almost everything else the consumer buys or uses has gone up.

Some of the facts recited in the Southern Bell petition point to the grave economic reason why the upturn in telephone rates is inevitable. During the last five years, the Bell company revenues in North Carolina increased 76 per cent while its expenses increased 102 per cent. The result was a steady decline in the company's return from an estimated 5.56 per cent of average investment in 1941 to only 3.94 per cent in 1945 and a bare 2.71 per cent for the three months of April through July of the current year. No company can hope to stay in business, much less stay solvent very long, with such a steady trend toward the red ink bottle.

The OPA can be expected to put up a good scrap before every state commission to combat any general rate increase trend. That is OPA's job and it emphasizes the importance of industrial unity, as in the case of the Washington state association. But when all the arguments are heard, the blunt fact remains that utility rates, telephone rates included, cannot be expected to go on holding to prewar levels while everything else goes up, including the industry payrolls and plant costs generally.

The utilities have "held the line" against inflation better than any other single industrial group. OPA probably would be the first to admit that (although it won't abstain from arguing against utility rate increases just the same). But there is a limit to what utilities reasonably can be expected to do. The telephone industry is even more vulnerable to the impact of the general inflationary trend now prevailing than the gas and electric utilities.

After all, reduced gas and electric

rates always have resulted in larger volume sales of service, so that increased revenue has absorbed or helped offset increased operating costs for these utility industries. But the telephone industry, with its relatively higher payroll factor, gets no such compensatory relief from low rates. More local traffic simply means more operating expense in most communities. And any opportunity (resulting from low rate inducement) to sell more service to new subscribers is blocked by shortages which prevent the immediate expansion of plant to take care of anything like the service demand already on hand.

The truth of the matter which OPA and everybody else will have to admit sooner or later is that the purchasing power of the dollar is deteriorating whether we like it or not. What's more it is not going to recover—not in the discernible future. We may stabilize the dollar somehow and somewhere along the line, but any one who expects the dollar to recover the purchasing value it had in 1939 or 1933 or 1913 is more of an optimist than a student of economic history.

After every war, the currency of all nations concerned in that war tends to deteriorate in purchasing value. Some more than others. Some, like the German mark following World War I, or the Hungarian pengo following World War II, become so diluted as to vanish altogether.

Even the currency of victorious nations slips in purchasing power. Take the French franc. Before World War I, it was worth about a quarter, in our money, on the foreign exchange. After World War I, it stayed around a nickel for a while and had sunk to less than two cents before World War II. Often, American tourists during the '30's would look at a five-centime piece (or "sou"—meaning five one-hundredths of one franc) and wonder why in the world a coin with such infinitesmal value ever was minted. The answer was that it largely was a relic of the time when the franc (and therefore the "sou") really meant something. In the day of Napoleon III a "sou" would buy a loaf of bread or a glass of wine. In the '30's it was hardly worth pocket space. The same could be said of the old German pfenning, English farthing, etc.

The American dollar like the English pound recovered some purchasing power following the inflationary period of the early '20's after World War I. But they never recovered all of it—not even during the severely deflationary days of the early '30's, when the depression made the cash dollar look as big as a cartwheel. Old-timers may remember 1913 prices before World War I when you could buy two pounds of pork chops for a quarter, choice steaks for 18 cents a pound, etc. Prices never went that low in subsequent years. They never will.

And so it is with the inflationary period we are going through right now. Prices probably will start going down late in 1947 and 1948, assuming we, as a nation, stop all this horsing around and using high sounding arguments about our "economic rights" to cover up our real and perfectly natural urge to loaf at somebody else's expense. Assuming we, as a nation, finally settle down to work and get production going so that it catches up with demand, prices will begin to drop.

But the important thing for utility folk to keep in mind is that prices will not go back to the prewar levels of 1939. We cannot reasonably expect them to. There are too many economic reasons against it, including a 300 billion dollar national debt, not to mention the precedent of economic history going back for over 100 years. Only a financial collapse and a complete reorganization of currency (which would be analogous to changing the labels artificially) would be likely to accomplish such a drastic economic cutback to ancient price levels when a couple of dollars filled the market basket.

Just the other day this writer heard a newspaperman ask Charlie Wilson, president of General Motors, "when" he expected prices to return to prewar levels. Charlie said "I don't expect to live that long." Further elaborating, with respect to his own product, Mr. Wilson said that he expected that "never again" would we see "new Chevrolet automobiles selling for from $500 to $600" as they did in the mid-thirties.

Among other reasons why we cannot expect prices to go back to where they were long ago, is that we have raised *costs* (by statute and otherwise) so that they cannot go back to where they were long ago. Minimum wages and maximum hour legislation, for example, forbid the return to operating cost conditions which permitted the low prices prevailing in the early '30's. Maybe this is a good thing from the standpoint of social reform. But the fact remains that such reform has to be paid for, and the public is getting the bill right now—along with the bill for other things, including the war.

We have been so busy shoring up the foundations of our economic structure that some of us may be surprised to learn that the ceilings have to go up too, as part of the process. The idea that costs can go up while prices stay down has, by this time, become a pretty well exploded myth taken seriously only in the more extreme and naive left wing publications.

The point in all this discussion for the telephone people is that the industry faces quite a task in educating the public to the idea that it, too, is part

OREGON ASSOCIATION ADVOCATES HIGHER RATES

TELEPHONY's contention that small telephone companies should seek sufficient revenues, through rate increases, to operate properly their plants and improve the quality of their service, which was expressed by its editor in an article, "Increased Rates—Improved Service," (TELEPHONY, September 28, page 22) is supported by Leslie A. Gritten, secretary-treasurer of the Oregon Independent Telephone Association.

In the association's publication, *News and Views*, Mr. Gritten states:

In Oregon, higher rates will be, for most of our companies, the only alternative to going out of business. Utility baiters who reason that because our service is not up to prewar standards, therefore we should be denied the rate increases essential to continued operation, are about as sensible as the housewife who tells the man, exhausted by starvation, that he must cut a few cords of wood before she will give him a meal. . . . The state of our service has been forced upon us by war conditions, war-begotten regulations and postwar futility of governmental attempts to control our national economy. If we are to meet the wave of demands for better service to more people, we must have adequate rates with which to pay efficient help at ever-rising wages and to buy essential equipment at ever-rising prices.

In the period of 1918 through 1944, according to the U. S. Statistical Abstract, the average cost of all commodities purchased by wage earners and lower salaried workers has risen 18.1 per cent. In the same period rentals have jumped 14.1 per cent, house furnishings 34.4 per cent, miscellaneous items 58.2 per cent. What they have climbed to in the hectic 21 months since 1944, our abstract does not reveal, but you may guess. As a typical example of what has happened to our business, telephone rates in Everett, Wash., one of the largest Independent cities, remain just what they were in 1918!

of the nation's general economic system. It, too, has been subjected to rising costs and must have compensatory increases in rising prices—meaning higher rates. This is difficult because somehow or another the public seems to consider utility service as something quite apart from the rest of our economic system. The public has come to expect that no matter how high other prices may go, utility rates will stay down or even go lower. It seems to assume that utility companies have some magic source of revenue with which they can go on indefinitely serving the public at 1913 rates or lower.

The mere fact that the dollar is losing purchasing power is not in itself alarming. It is important, of course, that it be stabilized as soon as possible so that some measure of recovery and lower prices will follow. But assuming that it will hit a peak and stop somewhere along the line (just as it always has in former inflationary periods, or we would have had a dollar collapse, just as Germany had her wallpaper mark collapse) the result will not be too harmful *if the price rises can be spread around quickly enough and equitably enough so that no segment of industry suffers irreparable injury.*

That is just where the telephone industry faces its problem. By its own good record for holding the price line during the war, it has unwillingly contributed to the public delusion that this can go on forever. In addition, telephone rates fall into that category of publicly accepted fixed prices which almost require a minor revolution to change. Like the nickel candy bar and the late lamented five-cent cigar, the nickel telephone call has become an institution. People don't haggle too much when the price of butter or nails or clothes jumps 10 or 12 per cent in a short period. But the mere suggestion that the standardized price of the local telephone pay-station call might have to go up to a dime instead of a nickel is viewed as something in the nature of treason. It's all simply a matter of public price concept, of course. The public is ready and willing to revise its concept of other commodity price changes. It will take much more effort, however, to educate all the folks to changing their concept of telephone rates. But it will have to be done. The danger is that the industry will suffer damage before it can be done and done right.

There are no alternatives or shortcuts for the telephone business. The candymakers can shrink the size of the candy bar and still sell it for a nickel. The cigar manufacturer can fill his cheapest line with skunk cabbage and manage to save some face at the cigar counter while trying to educate the customer to switch to a better brand. But the telephone industry cannot shrink its service area into smaller zones and, quite obviously, it cannot tamper with the quality of the public service.

No, the telephone industry is going to have to tackle this public illusion that telephone rates can go on forever defying the law of economic gravitation, frankly and at its face value and soon. Public service commissions, on the whole, are likely to be reasonable about it. But they in turn must depend on public support for their decisions and they cannot be expected to withstand all the pressure alone. Direct education of the public will be necessary to hold up the hands of the commissioners.

Even then, some commissions may prove difficult. Consider the recent case of Western Union trying to get intrastate telegraph rate increases equal to the 10 per cent interstate rate increase allowed by the FCC. Forty-four state commissions went along with the FCC in granting parallel intrastate increases. But one, the Tennessee commission, balked and even ordered a *rate reduction* on intrastate telegraph business. The Tennessee commission's idea seems to be that when you can't make revenues cover operating expenses, you should cut rates instead of increasing them. It will be a fine trick if it works. But if it doesn't work it will be pretty hard on Western Union. Anyhow, it shows what can be expected when the telephone industry starts out to get rate relief.

The New York City nickel subway fare situation shows the danger of letting a subnormal rate standard crystallize into a public institution. For years the New York politicians insisted on the nickel subway fare until it drove all the transit companies into bankruptcy. The city took over and found out that it cannot operate the subways profitably on a nickel fare any more than the private companies could. City officials admit it costs from seven to eight cents to give the New Yorker his subway ride for a nickel. Deficits are made up by tapping the till of public tax funds. The nickel fare has become a symbol—a wasteful and expensive symbol which even New York politicians admit will have to be overthrown before it wrecks the city.

There is a lesson in all this for the telephone industry. It's getting pretty late in this inflationary trend to think the good old days of the five-cent cigar ever will come back. The public will have to be told pretty soon the unpleasant news that it cannot expect 1946 quality of telephone service at 1919 rates.

»» Jed Harris, producer of such theatrical landmarks as "Broadway," "The Front Page," and "Coquette" had many things on his mind: Every time a new show went into production, there were the nerve wracking problems of casting, scenery, and the million and five other headaches of a big entrepreneur. Most of them done by telephone. That's what started it all . . . THOSE TELEPHONE CALLS!

Harris became convinced that his hearing was defective, hied himself to the country's foremost ear specialist, and demanded an immediate examination.

The specialist sat him down in an office chair, hauled an ornate gold time piece out of his pocket, and held it against Harris' ear. "Can you hear this ticking, my boy?" he asked. "Of course," said Harris impatiently.

The specialist walked to the doorway of his sanctum and held up the watch again.

"Can you hear the ticking now?" he demanded.

Harris concentrated a moment, and answered, "Yes, very clearly."

The specialist then walked into the next room 20 paces from his patient, asked for the third time, "Can you hear my watch now?" Harris knitted his brow, closed his eyes, and was silent for a moment. Then he said, "Yes, Doctor, I hear the ticking plainly."

*The ear specialist put the watch back in his pocket, nodded cheerfully, and held out a hand to his patient. "Mr. Harris," he said "there is absolutely nothing the matter with your hearing. You just don't listen."—**Omnibook** .*

THE CATALINA MICROWAVE

Radio-Telephone System

By CARL KOERNER
Engineer, Transmission Department
Southern California Telephone Co.

THE FIRST commercial multichannel microwave radio-telephone system in the Bell Telephone System was placed in service on May 27, 1946, by the Southern California Telephone Co. This eight-channel system provides additional communication facilities to Santa Catalina Island from the mainland. Before explaining the technical features of the equipment and some of the engineering considerations in this application, it might be well to review the background of commercial communications to Santa Catalina.

About 1902, a radio telegraph system was established to provide the first telecommunication to the island. After the first World War, the need for a better means of contact became apparent and in 1920 a single channel radio-telephone system was placed in operation by the Southern California Telephone Co. as the first commercial telephone circuit to the island.

It is interesting to note that this was prior to the inauguration of what we now know as radio broadcasting and wave lengths similar to those utilized by this radio-telephone generally were assigned for maritime radio-telegraph service. It was the hobby of many so-called radio "bugs" to tune their home-made receivers to these frequencies, necessitating the development of privacy equipment and installation of one of the earliest speech scramblers.

In 1923, the radio was replaced by two single-conductor submarine cables. The demands for service had become too great to be met by a single circuit, and increasing interference from ship transmitters and other problems rendered the continued operation of the radio difficult and unsatisfactory.

These two cables were rubber insulated and together provided two telephone and two telegraph circuits. As the demands for service increased, it was decided to secure as many more circuits as possible by operating carrier systems on the cables. This proposed carrier was unique by virtue of the shortness of the systems—26 miles—the first application of carrier telephone to deep sea cables and the ingenious use of hybrid coils at carrier frequencies to secure balanced operation.

After 17 years of circuit development, it had been possible to secure a total of 13 carrier telephone circuits in addition to the original two voice frequency "core" circuits. It appeared reasonable to undertake further circuit developments by some other method. A three-channel radio-telephone system therefore was planned for service in 1942, to care for the growth in traffic demand and to provide an alternate route concurrently so as to improve the communication system to the island.

This radio was to operate on wave lengths of approximately two meters (160 mc), which was a marked difference from those used in the original radio in 1920. War requirements, how-

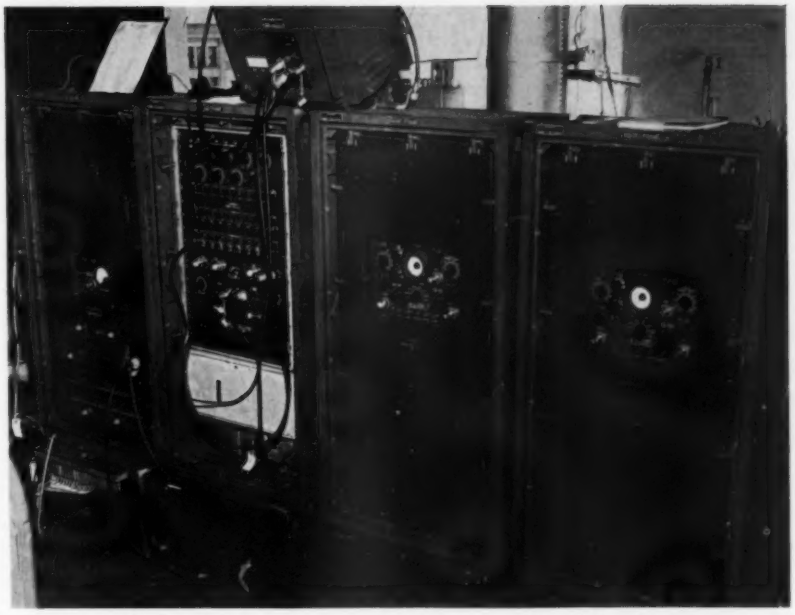
CARL KOERNER, center, engineer, Southern California Telephone Co., points in the direction of Santa Catalina Island from the roof of the Mutual central office building, location of the transmitting and receiving antennae and parabolic reflectors for the mainland side of the Los Angeles to Catalina radio-telephone system. Right, L. R. MONTFORT, member of the technical staff, Bell laboratories, and left, NEAN LUND, member of the technical staff, Bell laboratories.

ever, dictated the use of this equipment elsewhere, necessitating the abandonment of these plans.

At the end of the war, it became apparent to both the Southern California Telephone Co. and Santa Catalina officials that the island resort would be more active than ever before. Additional telephone circuits must be provided. Further carrier development, additional submarine cable or radio could do the job. The telephone company decided that the most desirable plan would be to place a multi-channel microwave radio system. This would provide the circuits economically and over a new route not subject to the same type of hazards as the submarine cables.

The AN/TRC-6 eight-channel pulse position modulation radio system was chosen for this first commercial application of microwave telephony in the national telephone network. Construction permits to build the radio stations were secured from the Federal Communications Commission. Class 2 experimental (point to point) licenses were granted by the commission.

This microwave telephone system was developed by the Bell Telephone Laboratories for military use and supplied by the Western Electric Co. to the armed forces during World War II. Heretofore used solely for military purposes, the equipment has undergone extensive tests by the Bell laboratories, principally between the New York Telephone Co. building at 140 West St., in New York City and Neshanic, N. J. In actual combat the "six set," as it popularly is known, furnished a quick means of dependable communication with speech fidelity superior to any other available multi-channel radio system.



Temporary terminal equipment for the radio-telephone system between Los Angeles and Santa Catalina Island temporarily is located on roof of the Mutual central office building, Los Angeles.

As contrasted to the earlier radio systems used or proposed for Santa Catalina, this one operates on very short wave lengths of about six centimeters (5000 mc). At these frequencies static and most "man-made" interferences appear to be completely absent.

Although the transmitting power is extremely low, being in the order of a few watts peak, the waves can be concentrated into a very sharp beam. Parabolic reflectors served this purpose, beaming the energy so that only 1.9 degrees from the center of the beam the power is a quarter as great as that at the center (six db lower). This provides a field strength at the receiver equivalent to a transmitter of many hundreds of kilowatts of power, radiating energy equally in all directions.

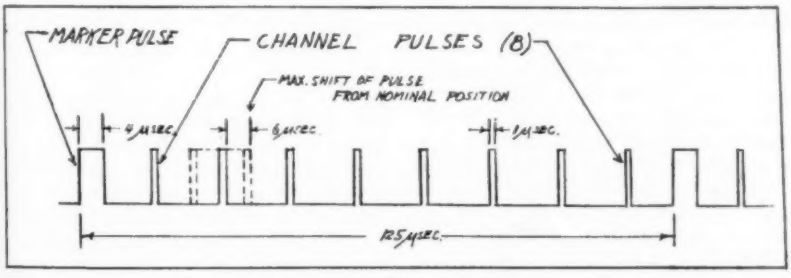


Fig. 1. Pulse position modulation frame.

Different frequencies are used for transmitting and receiving, thereby providing effective four-wire operation. Where the distance between terminals requires the use of one or more intermediate radio repeaters, four frequencies ordinarily would be required. This permits use of a pair of frequencies for each alternate link and avoids interference from transmitters in opposite directions from a given repeater point. As discussed later, it appeared originally that a repeater near San Pedro would be necessary for this system. After further studies, this relay point was eliminated from the plans.

The theory of pulse position modulation has been covered in other articles. Briefly, the transmission of a telephone conversation by pulse modulation depends upon the principle of sampling. It can be shown mathematically that if a wave is sampled at a frequency at least twice that of the highest component to be transmitted, the wave may be recreated from the samples at the receiving end.

In the AN/TRC-6 system, the audio telephone wave is sampled 8,000 times a second. The instantaneous amplitude of the wave at the moment of sampling is converted into a relative position of a pulse, and the pulse then is reconverted into amplitude variations at the receiving end, thereby recreating the original wave.

As the pulses are of very short duration, namely, about one micro-second and they shift from the nominal position, a maximum of only plus or minus six micro-seconds, it is possible to sample several different telephone channels in the 125 micro-second interval between the repetition of the pulse group. In the AN/TRC-6 system, eight channels are sampled in sequence.

As the position of each pulse varies, it is necessary to provide some point as a reference position. This reference is a so-called marker pulse of four microseconds duration, which also is transmitted at a rate of 8,000 times a second.

The pulse group, consisting of one marker and eight channel pulses, is known as a frame, the word probably having been derived from television techniques. *Fig. 1* shows a typical frame for pulse position modulation and depicts the relationship between

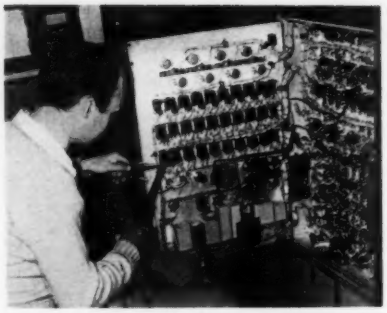
the transmitted radio frequency envelope and time. The dotted lines shown for Channel 2 indicate the limits of the change in position of the pulse upon modulation.

By means of electronic switching, each pulse is in sequence associated with one of the eight telephone channels for position modulation. At the receiving end the pulses are sorted by means of electronically switched so-called gates, so as to be reassociated with the proper telephone circuit. At this time their position with respect to the marker is converted back to the original amplitude variation as previously mentioned.

Notwithstanding the fears of the layman who might expect dire results from transmitting the intelligence by means of short pulses, there is no perceptible distortion in the resultant telephone channel. As a matter of fact, the resultant channels are not only distortion free, but are of substantial band width, noise-free, and operate with good frequency response. In these respects the performance of the radiotelephone channels is on a par with the better landline telephone circuits.

A few words relative to the engineering of this particular system now are appropriate. The distance from Avalon, where the existing toll message circuits terminate, to the mainland is approximately 25 miles over Santa Catalina Channel. From San Pedro to the Mutual central office building in downtown Los Angeles, where the mainland end of the existing circuits appears at the toll switchboard, also is approximately 25 miles.

Originally it was thought that it would be necessary to establish the system in two links with a radio repeater being located in the San Pedro hills. Further studies were made. Profile contours were prepared and a surveyor engaged to determine exactly the path near the Mutual building, and accurately to locate nearby signs, penthouses and other objects in relation to the path. Computations developed the exact path between downtown Los



J. J. DeBUSKE, member of the Bell Telephone Laboratories technical staff, makes final installations on the MX frame at Catalina Island before putting the Los Angeles to Santa Catalina Island radio-telephone system into service.

Angeles and San Pedro and an investigation was undertaken to ascertain the possible effect of intermediate towers, water tanks and other potential obstructions.

These studies led to the conclusion that a clear line-of-sight path was available between the Mutual building and certain points on Santa Catalina Island near Avalon, and it therefore was decided to try the system without the intermediate repeater.

On Santa Catalina, the site selected for the radio station is on a road leading to the Renton Mine. The elevation above sea level of this site is approximately 800 ft., while the driving distance to Avalon is 3½ miles. While a site closer to the town of Avalon, which would require less expenditure for wire line extensions, would have been desirable, the site selected had the advantage that an access road was available and relatively expensive road construction could, therefore, be avoided. Furthermore, the site seemed to offer sufficient likelihood of success from the standpoint of radio transmission so that the Southern California company and Bell Telephone Laboratories' engineers were willing to collaborate in establishing this system using this site. A temporary building with the necessary cable and power connections therefore was constructed.

At the Los Angeles end of the proposed system the tower, which includes transmitting and receiving parabolic antennas with their respective transmitter-oscillator and receiver-converter, was placed on the penthouse of the Mutual building at an elevation which is computed to be approximately 450 ft. above sea level.

The terminal equipment, which consists of radio, multiplex and common frames, was situated on the sixth floor where other toll equipment is located. Eight cables, including coaxial cables carrying so-called video frequencies for modulating the transmitter and the 60 megacycle intermediate frequency from the receiver-converter to the IF amplifier, were used to connect the sixth-floor equipment with the tower equipment. By means of this arrangement, maintenance and trouble shooting is simplified by virtue of the greater accessibility of the more complicated items of equipment.

Early in 1946, preparations were made for the first test communication between terminals of the system. Engineers and technicians manned the towers and equipment and proceeded with the routine of varying the orientation of the antennas in the operation known as "antenna finding." In very short order contact was established and of a quality gratifying to all concerned. Tests then proceeded and on May 27, 1946, the system was ready for commercial operation and the channels turned over to traffic use for the first commercial application in the general telephone network.

The circuits thus far have come up to expectations in regard to quality and reliability. As this particular equipment was designed originally for portable military use, it is not expected to find wide application in commercial telephony; however, lessons learned from its use undoubtedly will be helpful in determining the field of application for multi-channel microwave telephone systems yet to be designed. There appears to be little doubt that radio will be applied increasingly in the telephone network.

What Wood You Do?

The switchboard girl in an Olympia, Wash., federal office gave the caller her usual salutation:

"Good morning, Olympic national forest."

There was a short silence. Then a voice asked: "Which tree is speaking?"

Ultimate in Data

The sailor and the little blond he had just picked up danced dreamily around the floor at the Coney Island pier.

"Tell me about yourself," he breathed, "Your background, your ambitions, your telephone number."—**Bulletin**

TELEPHONE SERVICE DOWN MEXICO WAY

*By FLORA URQUIRI, Secretary, Spanish Unit, General Telephone Directory Co.

"BUENO, ¿como esta?" That's our neighbor South of the Border speaking and for you who never have been exposed to the infectious Latin-American influence, a telephone conversation is in the offing. "Hello, how are you?"

With the postwar era will come expansion and increase in foreign trade; great potentialities lie close to home in the Latin-American countries. Publishing probably will be one field for which there will be great demand. Already the Compañía Eléctrica y Telefónica Fronteriza, S.A., of Tijuana, Baja California, has contracted an agent in the United States to publish its telephone directory including the exchanges of Tijuana, Mexicali, Ensenada and Tecate.

The progressive, three-million dollar organization, Compañía Eléctrica y Telefónica Fronteriza, S.A., is typical of the industries which have mushroomed up in Mexico during the last few decades and which fast are putting Mexico in the top ranks as a progressive, modern nation. This organization was started with only $150 in 1914 by Manuel Barbachano, now president of the company. At that time Tijuana had little more than a custom house, post office, curio store, grocery store and Chinese restaurant. The company, known originally as Compañía Eléctrica de Baja California, did not introduce telephone service until 1924 at which time it also bought the border exchanges of Agua Prieta, Nogales, Hermosillo, Mazatlán, Culiacán, Ciudad Juárez and Laredo, these latter being sold to the Ericsson Co. in Mexico City after a period of two years.

It was between the Compañía Eléctrica y Telefónica Fronteriza, S.A., and the Southern California Telephone Co. that one of the first telephone connecting agreements between the United States and Mexico was negotiated. By virtue of this agreement it was possible to transmit calls via the United States to other points within Mexico which made the telephone a veritable life-line, not only in its contacts with its neighbor, the United States, but with the mother country as well, because, due to the remoteness of Baja California from the interior and capital of Mexico and due to the sparcity of population in this region, it was found impractical to construct lines to such distant points within Mexico. Thus, the company was able to offer the community a vital public service. Today the company serves a population of over 50,000, and embraces approximately 2,500 telephones, 1,000 of which are business telephones.

The U.S.-educated Barbachano brothers, Manuel and Miguel, president and general manager, respectively, of the Compañía Eléctrica y Telefónica Fronteriza, S.A., come from a distinguished family. Originally from Spain, the family settled in Yucatán where their philanthropic grandfather, an eminent public figure, was elected governor three times. The Barbachano brothers, following in the footsteps of their forefathers, play an active role in public life of Baja California.

As far as is known, the first Mexican telephone directory to be put out by an American publishing company was the September, 1946 issue of the Tijuana-Mexicali - Ensenada - Tecate Directory, published by the General Telephone Directory Co. for the Compañía Eléctrica y Telefónica Fronteriza, S.A. For this undertaking, the General Telephone Directory Co. employed a special Spanish-speaking staff which included a translator, five salesmen—college students from University of Southern California — and a secretary, for the purpose of selling advertising in Spanish and compiling and publishing this directory.

It was necessary for the company to start from "scratch," so to speak. All records—sales contracts, change orders, proof sheets, sales cards, etc.—had to be translated into Spanish. For the printing, it was necessary for the printer to order new type with accents, since accents are a vital and integral part of the Spanish language, as are diaeresis (ü), tilde (ñ) as in señorita, and punctuation, which varies from the English in a number of respects as in questions, ¿quién sabe? (who knows?) and exclamations ¡ay ay! (oh, oh!) Initial operations also included the compiling of a complete classified Spanish heading structure which was done by a combination of standard heading structure used for American directories, a perusal of various Mexican directories and a survey of Mexican industries and mode of life.

Border towns, due to their proximity to the United States, present a condition which ordinarily would not be found in the interior and this is the infiltration of English words and the assimilation of anglicisms into the native tongue. For example, "taxis" has become such a common term that in the classified section a cross reference was made from "Taxis" to "Sitios de Automóviles." It also was necessary to take into consideration the various types of

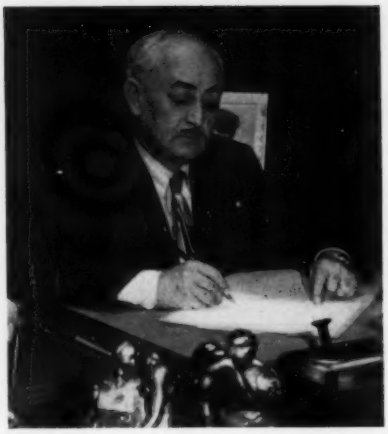
industries which are characteristic of the Mexican people, such as tortillerías (tortilla factories), loterías (lotteries), and plazas de toros (bull rings). The completed heading list gave an interesting picture of a relatively different type of social culture than our own with stress on arts and crafts and basic industries with less large-scale industrialization than is found here in the United States.

The bi-lingual salesmen, canvassing for classified directory advertising, observed that Mexican customs varied noticeably from our own. Spanish names often perplex Americans. Men continue to use their mothers' name as a part of their surname, and married women continue to use their maiden names. In the hypothetical case of Señor Juan López Rodríguez, López is the father's name and Rodríguez is the mother's name, and in alphabetizing, the name would appear as López Rodríguez Juan. Let us assume that María García marries Juan López; she then becomes Señora María García de López and in alphabetizing, she would be listed in the "L's." However, in all cases, the "de" cannot be treated in this manner as often many surnames beginning with "de," as in De Alba and De La Torre, are alphabetized under the "D's." If a woman is a widow, it is so indicated—Señora María García viuda de (widow of) López. Also in alphabetizing, "ll," "ch" and "rr" are considered separate letters of the alphabet.

Although the siesta, a custom tenaciously observed throughout most of Mexico, is not practiced in border towns, an absence of set business hours for employers was encountered when salesmen endeavored to contact owners of businesses or persons authorized to sign for advertising contracts. By adjusting working hours and canvassing during evening hours, many contacts which could not be made successfully during the day, were completed at that time.

Many clients were pleased with the payment plan, a bill presented each month with the telephone bill, as they were accustomed to paying the complete amount in advance. The fluctuating price system, so common in Latin-America, had been the basis of payment for the previous directory published for the Compañía Eléctrica y Telefónica Fronteriza, S.A. by an independent agent. If a business firm looked prosperous, the price of advertising went up; if business wasn't so good, the price of advertising went down, and if business was very bad, anything in trade would do.

The new directory produced a revenue of 3,000 pesos—$600—per month, or roughly, $3.00 per telephone.



MANUEL P. BARBACHANO (left) and MIGUEL A. BARBACHANO, president and general manager, respectively, of the Compañía Eléctrica y Telefónica Fronteriza, S.A.

The American influence is quite predominant along the border towns and many clients insisted on American classified advertising headings, basing this request on the fact that their business caters to American "turistas." For example, the directory carried not only the heading "Regalos" but also the English equivalent, "Gift Shops." In Ensenada, essentially a fishing village, there were many bait houses, for which there is no satisfactory Spanish equivalent, therefore the heading "Bait Houses" was used.

Addresses frequently presented a problem. Business houses often identified themselves with such locations as "atrás de la cárcel" (behind the jail) or "a espaldas de la tortillería" (at the back part of the tortilla factory). Another common expression used in addresses was "altos" and "bajos," meaning the upper or lower floors.

Aside from having to make a few adjustments, the salesmen encountered no difficulties, found the work pleasant and the people cooperative.

Mexico and many Latin-American countries are experiencing unprecedented prosperity because of the brisk foreign trade during the war years and because of the millions of dollars pouring in from the tourist trade, which had been non-existent during the war. On the other hand, these countries, too, are eager for American goods, machinery and specialized services which they have been unable to obtain due to the all-out war effort. All indications point to great strides in industrialization and expansion in a myriad of fields, and opportunities for American business infiltration abound as never before.

Accessibility to Latin-American countries is a feature not to be overlooked when seeking foreign fields for development. Like the Compañía Eléc-

(Please turn to page 37)

Mexican telephone directory personnel engaged in proofreading. Left to right: LEOPOLDO AMADOR, ROBERTO LEWIS, ALEJANDRO DYER, FLORA URQUIRI (the author), and BENJAMIN MOYA, Latin-American publishing representative who supervised publication of the directory.

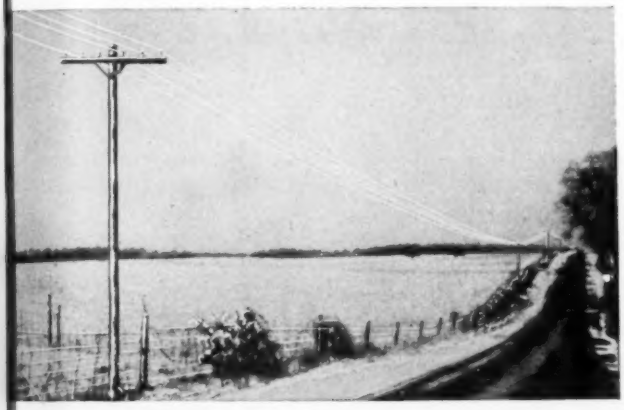
Rural Lines Stand Up Under Heavy Ice Load

ICE 3/4-INCH IN DIAMETER formed on long-span lines of *Crapo* HTL-135 Line Wire (No. 12 B.W.G.) during heavy sleet storm. Service continued without interruption.

WINTER'S THREAT to rural telephone service is minimized when lines are built of *Crapo* HTL-135 High-Tensile Telephone Line Wire. For *Crapo* HTL-135 provides that rugged, extra strength needed to withstand heavy ice and wind loading.

Proof that long-span lines of *Crapo* HTL-135 will "weather" destructive storms without service interruption is contained in these and other pictures from storm-affected areas. Time and again this high strength wire has stood up under extreme adverse conditions while other wires have failed. *Crapo* HTL-135 also has demonstrated its ability to sustain heavy loads without excessive sag, thereby eliminating the necessity of "pulling slack."

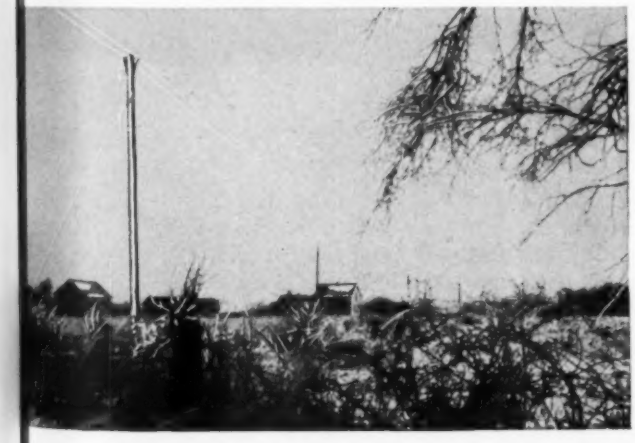
WRITE FOR YOUR COPY of Manual No. 203 containing pertinent information on how to build better rural telephone lines at lower cost. Address: INDIANA STEEL & WIRE COMPANY, Muncie, Indiana.



VIEW OF 300-FOOT SPAN of *Crapo* HTL-135. Note how wires sustain the heavy coating of ice without excessive sag.

(Above) SMALL DEAD-END POLE at end of 350-foot span. *Crapo* HTL-135 assumed normal position after ice melted.

(Below) POLE WITH 4-INCH TOP in foreground sustains ice-loaded span 350 feet long. No appreciable increase in sags was noted when ice disintegrated.



WEIGHT OF ICE can be estimated by effect on tree limbs. Despite heavy loading no damage was reported on circuits of *Crapo* HTL-135.

Crapo HTL-85

Crapo HTL-135

Crapo HIGH-TENSILE TELEPHONE LINE WIRE

The advertisement on the opposite page appears in national magazines during October. It points up the Bell System's deep sense of responsibility as a public servant to the nation.

An Advertisement of the Bell Telephone System

SERVING THREE GREAT GROUPS OF PEOPLE

From statement by Walter S. Gifford, President, American Telephone and Telegraph Company, at 1946 Annual Meeting of stockholders

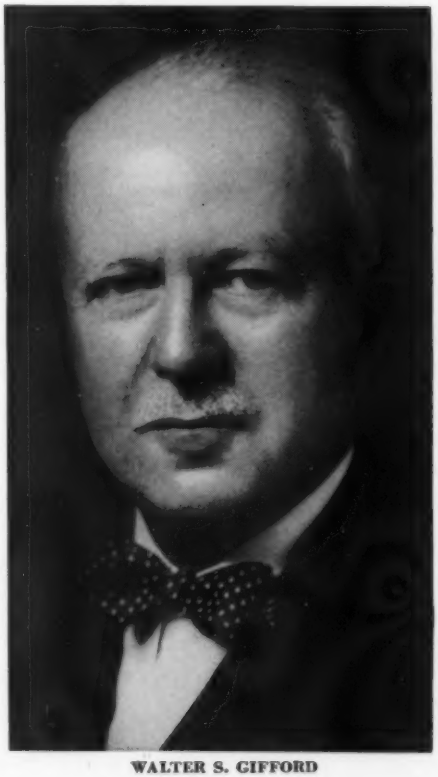
"It is not without significance that our Annual Report opens with the statement that 'The Board of Directors of the American Telephone and Telegraph Company presents herewith the management's accounting of its stewardship for the information of stockholders, employees, telephone users and the entire American people who have entrusted to private enterprise the responsibility for carrying on this essential national service.'

"There is every reason for the management of your company to treat equitably each of the three parties concerned, namely, the telephone users, the employees and the stockholders. For in the long run, the interests of these three great groups of people, individually and collectively, are mutual and interdependent.

"More and better service at the least cost is as much in the interests of stockholders and employees as it is of the telephone users.

"Well-paid employees with steady employment; with opportunities open to all for advancement; and with reasonable protection against contingencies of illness, accident, death and old age are as much to the benefit of telephone users and stockholders as to employees.

"A stable and fair return on the money invested in the business—sufficient to attract the new money needed to develop and expand facilities—is as good for the telephone users and employees as it is for the stockholders."



WALTER S. GIFFORD

BELL TELEPHONE SYSTEM

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IN ANY MO N SCEN

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...S CORP...3 W. Van Buren St., Chicago 7, U. S. A.
...RNATI...MATIC ELECTRIC CORPORATION

The Type 50 Wall-Mounting Monophone

The Type 43 Compact Monophone

The Type 44 Wall Monophone

Engineering Library

THE PLANT MAN'S NOTE BOOK

BY RAY BLAIN TECHNICAL EDITOR

WE HAVE had frequent reports of late to the effect that contact points on relays and keys are causing an increased amount of trouble. While we do not have definite information as to the cause of this trouble, we venture to suggest that it may be due to the use of substitute metal alloys utilized during the period of war shortages. Then, too, equipment has handled an excessive traffic load for a period of years now and the normal contact wear naturally would be greater than was experienced in normal years.

• • •

Thomas A. Edison once said: "Success is 2 per cent inspiration and 98 per cent perspiration."

• • •

W. J. Royen, Signal Corps engineer, was standing admiring a new telephone maintenance truck of the New Jersey Bell Telephone Co. at Cape May, N. J., recently when a dear old lady stepped up and asked the driver, "Is it true that all the telephone poles will have to be changed before I can get a dial telephone?" The driver, being a gentleman, gave the dear old lady the correct answer.

• • •

We are in receipt of a letter from F. V. Rhodes, secretary of the California Independent Telephone Association, which states, in part, as follows:

"I have a question which might be helpful to all telephone companies, as well as California companies whose interests, of course, I now have in mind. Many operating companies, as you know, keep detailed records of their poles showing size, class, height, treated, non-treated, stepped, etc. This is quite necessary in connection with plant accounting and if the poles are jointly used for different accounting purposes, such as billing and collecting from other users.

"This record also is useful in connection with replacing poles, stubbing, etc., and when depreciating them, it is essential that records of individual poles be maintained. The larger companies, of course, have detailed records of this nature. They label each pole showing ownership (if joint, they are proportioned). Also, they tag each pole showing date set, etc.

"Many of the medium and small sized companies have need for a pole record system of some kind, but they cannot and should not enter into the voluminous and detailed records that the larger companies consider necessary. Is there a possibility that some of your readers have a pole record that is feasible for the average small company to install?"

No doubt some of our readers have just the records Mr. Rhodes has in mind and, if so, will you please write us so that we may pass this information along to all of our readers?

• • •

A new "swelter-proof" heat-conducting headphone cushion recently has been made available for use of pilots and other aviation personnel *(see illustration)*. This "air-cooled"

headphone cushion, made of moulded, heat-conducting rubber, also should have a useful application in the telephone industry.

• • •

Telephone men of the present generation always appear ready and eager to adopt new tools, materials and ideas of proved value. We feel that this is as it should be and that it will make possible rapid progress in the future development of our industry. This does not mean that present day telephone men will adopt every crackpot idea that comes along, but these men are qualified to pick the wheat from the chaff and retain that which will prove of lasting benefit. It is true that changes are not progress in all cases, but it likewise is true that nothing ever stands still. We always must move forward or experience retrogression.

• • •

We just have received word that Al Long, sales manager, Telephone Switching Systems, Federal Telephone & Radio Corp., New York, N. Y., and who was drafted by them from International Standards Electric Corp., has returned to his old company. He now will handle their sales development on a world-wide basis of wire communication equipment.

• • •

Maj. Thomas McFarland, Jr., in Tokyo, married Jeanne Pullen, 10,000 miles away in Washington, D. C., on September 10, 1946, by the aid of a minister and the radio-telephone.

The bride was obliged to go to Washington from New York as that state does not permit telephone weddings.

The minister wore headphones while the bride used a regular handset telephone. The call cost the groom $12 for the first three minutes, plus tax, and $4.00 for an extra minute.

The couple plan another wedding ceremony after she joins him in Korea in December. The bride explained, "We decided to get married by telephone because the Army permits wives to go to Korea, but fiancees can't go."

• • •

The writer recently moved back to Washington, D. C., after a stay of 3½ years in Philadelphia. During that period, a total of 140 round trips was made between these two cities, representing over 40,000 miles of travel.

• • •

Development engineers now are toying with the possibilities of miniaturizing central office switching equipment and, at the same time, reducing its weight. The principal expected advantage is to reduce space and floor loading in central office buildings. We doubt very much, however, that this gain would justify the cost of the design change.

There also are plans under consid-

eration to arrange parts of equipment, such as relays, coils and condensers in sealed gas filled containers, these parts to be jacked into mounting strips on equipment racks. If a relay develops trouble, no attempt would be made to effect repairs locally, but it would be replaced and returned to the manufacturer for repair or exchange.

While we do not claim this idea is without merit, we do question whether the savings gained in reduced maintenance costs would warrant the proposed change in design. It must be admitted, however, that this equipment would be practically trouble-free and this, in itself, certainly would contribute mightily to better telephone service.

PLANT MAN'S QUIZ

Q. When rebutting switchboard cords, how should the terminals be attached to the tinsel conductors to insure good service?

A. The new method of attaching metal terminals to tinsel conductors by compression proves entirely satisfactory. New tools make this operation a comparatively simple task.

The soldering of these tips to the conductor ordinarily is not recommended as the heat generally makes the tinsel brittle and causes it to break. A sharp punch can be used to make a hole through the tinsel for a screw to bind the conductor to the plug. This method, though effective, is slow and difficult to perform except for well-trained workmen.

• • •

Q. Please furnish a list of troubles which may be expected on the cord circuits of a common battery multiple switchboard, their causes and remedies.

A. The anticipation of all troubles which will happen on any piece of electrical equipment is an utter impossibility. Trouble experienced will, in general, depend on how the equipment is used and maintained. Preventive maintenance, which is clearing conditions before they cause trouble, is, of course, the best practice.

When preventive maintenance is applied to common battery cord circuits, clean and polish the plugs at regular intervals, using an approved plug paste or a rubber ruby eraser. Corroded or dirty plugs make poor contact with the jack springs and cause noise and cut-out trouble.

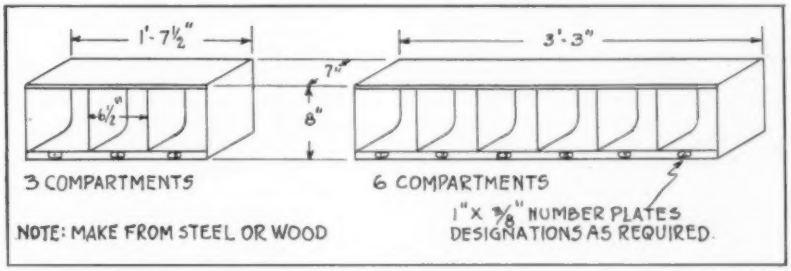
Cords should be rebutted when they indicate the slightest wear near the butt of the plugs. If this is neglected, noise surely will result.

Soldered connections all should be checked to make certain they are sound. Relays should be routined and checked at regular intervals. If relays are adjusted in accordance with the requirements specified by the manufacturer, they will cause very little trouble. Relay and key contacts should be cleaned and burnished as required.

Coils, resistors and condensers are designed carefully and seldom cause trouble. When cord circuits are maintained by the preventive maintenance method, very little actual trouble will be experienced.

• • •

Q. Please describe an operator's headset cabinet suitable for a small exchange which can be constructed locally.



A. The accompanying sketch describes a cabinet which easily can be constructed and which has been used rather extensively.

• • •

Q. What is the fibre strength of the types of wood poles?

A. The American Standards Association has established the following standards:

Northern White Cedar	3,600 lbs. per sq. in.
Western Red Cedar	5,600 lbs. per sq. in.
Chestnut	6,000 lbs. per sq. in.
Southern Pine (creosoted)	7,400 lbs. per sq. in.
Douglas Fir (creosoted)	7,400 lbs. per sq. in.

• • •

Q. Is there any way of recovering ground rods economically for re-use and if so, how can this be accomplished?

A. In general, it is our opinion that it is more economical to abandon used ground rods in place, rather than to attempt to recover them for re-use. When, for some special reason, it is considered more economical to remove old ground rods, they generally can be pulled by the use of chain hoists or pole jacks.

• • •

Q. What size portable gasoline operated generator is considered suitable for operating electric tools on a telephone construction truck?

A. The 100-watt size usually will prove ample capacity for this purpose. Generally, electric tools, such as drills, do not draw over 500 watts so the 100-watt size provides necessary power with a suitable reserve.

• • •

Q. Is the single piece two-groove transposition insulator suitable for use on toll lines?

A. This type of insulator has been used extensively on certain types of toll lines for the past several years. Care should be taken, however, to have the proper amount of slack; otherwise, the wires may strike each other in a high wind. This especially is true of long spans.

• • •

Q. What is the meaning of the term "main frame fill" in connection with exchange cable utilization?

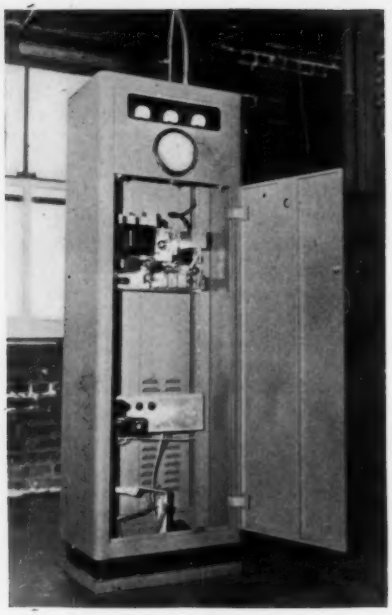
A. This represents the ratio of the cable pairs in use at the main frame to the total number of pairs actually terminated on the frame. Due to its convenience, "main frame fill" usually is the most frequently used and valuable index of cable utilization.

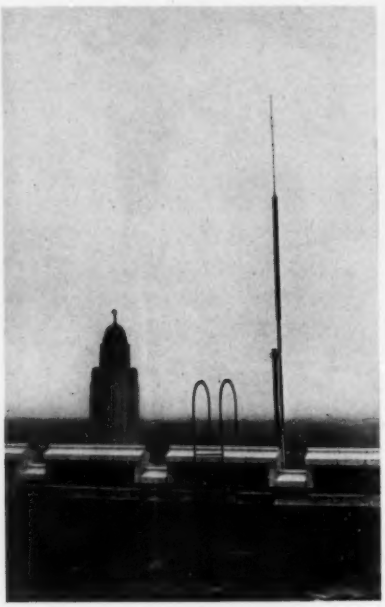
V V

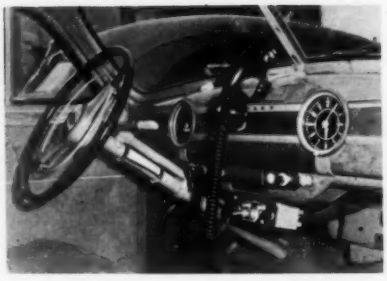
Worcester, Mass., to Have Sixth Exchange

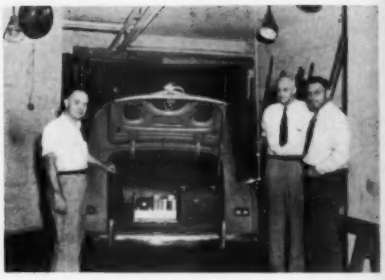
The New England Telephone & Telegraph Co. expects to complete construction of its sixth exchange in Worcester, Mass., by January 15, 1947, thereby bringing service to 2,710 applicants.

Cost of the new facilities will be approximately $350,000.









The above photographs, sent to TELEPHONY by the Lincoln (Neb.) Telephone & Telegraph Co., were taken during the company's recent highly successful mobile radio-telephone experiment. (TELEPHONY, September 7, page 34.) TOP LEFT: Fixed 50-watt radio transmitter located on top floor of Sharp Building, Lincoln; TOP CENTER: Fixed antenna at top of 17-story building; TOP RIGHT: Contemplated installation of radio transmitter, receiver and antenna in a mobile unit. BOTTOM ROW, LEFT: LOWELL JOHNSON; KENT ENO, shop foreman, and GAY HENDERSON inspect equipment which includes field receiver (center), flanked by a mobile receiver and transmitter. LOWER CENTER: An interior view of a mobile unit showing handset mounting above the dash and control panel just below. Loudspeaker used for signalling is underneath the dash. LOWER RIGHT (left to right): ARDELL ROBISON, HOWARD SMITH and J. SUTTON begin installation of the transmitter and receiver in the first mobile unit, a company fleet car. C. C. DONLEY, general traffic superintendent, directed the experiment.

British Telephone System Faces Labor Shortage

The telephone system in Great Britain still is struggling against the lack of skilled workers and the limited input of promising trainees. Not only is the shortage acute in the case of skilled installation engineers; it also embraces the general run of less complicated but vitally important duties such as switchboard operation.

Approximately 6,800 post office engineers are still with the armed forces. To help to counteract this shortage of manpower, 2,500 women are employed by the post office on external and subscribers fitting, which enables more men to be put on telephone maintenance work. Approximately 53,000 engineers keep the telephone service working.

In London, the post office is asking for 3,000 girls as soon as possible, to work on switchboards there. The increase in telephone traffic, and the number of married operators leaving to join their husbands, make it imperative that newcomers should be recruited quickly.

V V

Great Britain Plans Speedier Telephone Installation

"Distribution cabinets and pillars" are beginning to make their appearance in the towns of Great Britain as part of the post office plans for the future expansion of the telephone service.

These cabinets, forming the junction points and "cross-roads" in the underground system, are an entirely new departure in English telephone distribution. Each of the inconspicuously placed units is provided with a means of cross connection evolved by post office engineers, which, it is said, caters for a large number of underground circuits and allows any desired connections to be made simply by joining terminals on each side of a frame.

Distribution cabinets and pillars are expected to give greater flexibility in connecting up subscribers' lines and to reduce to a minimum the opening of manholes in footpaths, thereby lessening obstructions to pedestrians. This will mean quicker connections of subscribers when the wartime arrears of cable provision have been overtaken.

V V

Installs New Switchboard

The Estacada (Ore.) Telephone & Telegraph Co. recently installed a new two-position switchboard, combination magneto and common battery. Manager Alva Smith reports the further construction of outside plant.

Announcing

the new

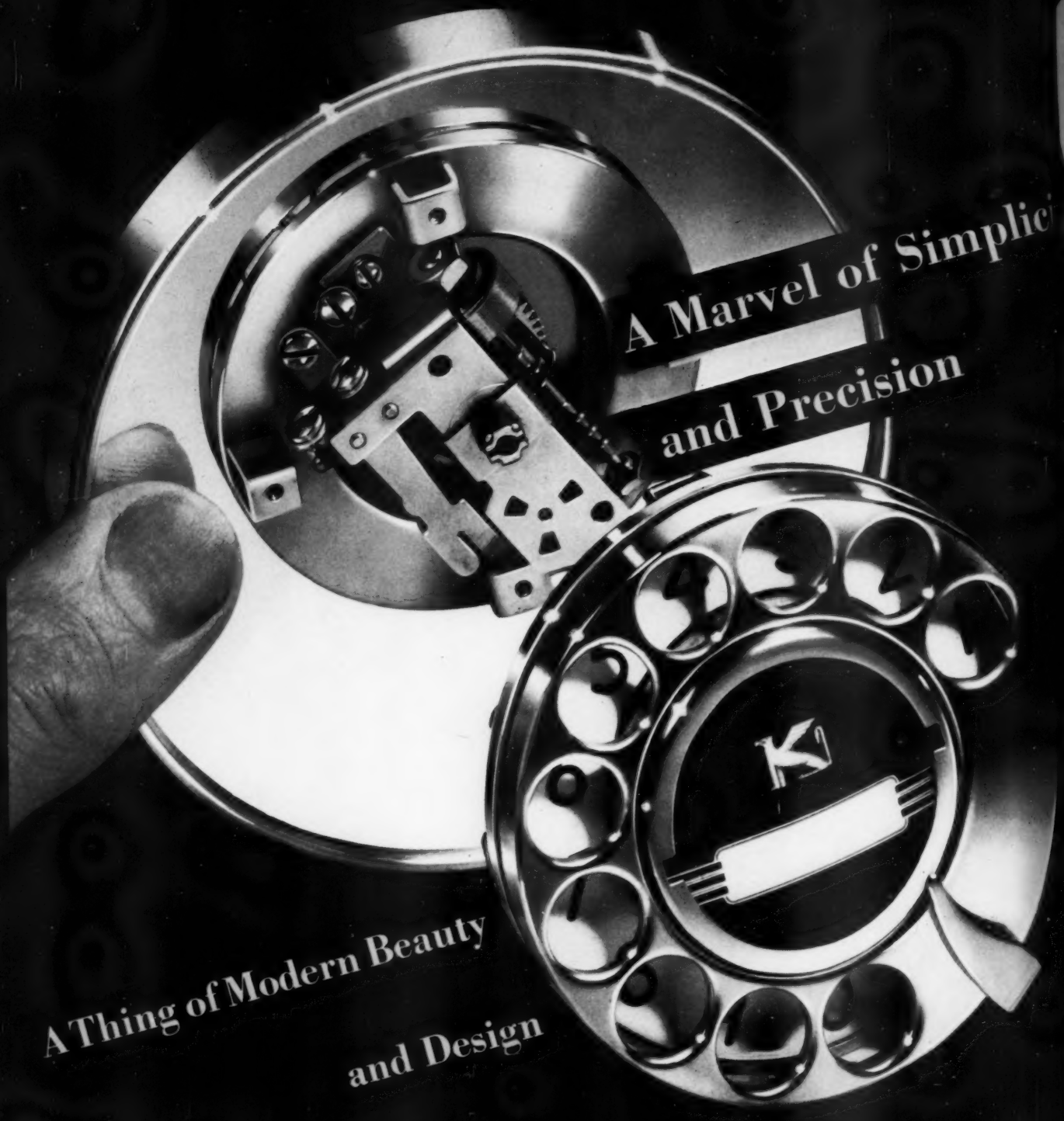
KELLOGG *Master-Dial*

For half a century, Independent telephone men have benefitted by the many far-reaching contributions to the art of telephony made by the Kellogg Company. This announcement of the new Kellogg MASTER-DIAL is one of the high-spots in the long list of achievements.

We believe you will agree when you see this truly revolutionary advance in dial engineering. You will see what modern research combined with highly developed manufacturing skills have done to advance dialing techniques many years—to bring you a stronger, quieter dial that will give you better, trouble-free service with less maintenance than was ever before possible.

It's a Beauty—
Inside and Out—
TURN THE PAGE TO SEE

AT LAST··· *the Dial that Obeys*



...VERYTHING *You Want!*

the new

KELLOGG

Master-Dial

At Last—

a QUIET Dial

As soft and smooth as the purr of a kitten—that's the impression you get when you hear the new MASTER-DIAL. Compare it side by side with any other—you'll say it's the quietest of all dials.

At Last—

a RUGGED Dial

The extra-rigid mounting base of annealed deep drawn brass eliminates any chance of distortion—provides a perfect base for mounting the precision parts of the MASTER-DIAL. There is comparable ruggedness throughout the dial.

The years of research that went into the development of the new Kellogg MASTER-DIAL were devoted to the attainment of one major objective: to design a dial that would give the best service at the lowest cost. That, in turn, would mean better profits for telephone men.

So, in the Kellogg MASTER-DIAL you will be happy to see a basic simplicity of design that makes routine maintenance far easier than in any other dial you have ever seen. You will discover precision parts of the finest materials known, designed to operate and stay in perfect adjustment longer. You will find these parts mounted on a supremely rugged base.

Having achieved the main goal of better service, Kellogg went farther. So, you will find the new MASTER-DIAL unbelievably quiet and smooth in operation. You will appreciate its unusual beauty and impressive appearance—not approached by any dial available today.

Check the high-spots of this new dial briefed on these pages. Then decide to have your Kellogg representative give you the complete story of the amazing new MASTER-DIAL at the earliest possible date.

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
6650 South Cicero Avenue, Chicago 38, Illinois
Designers and Builders of Finer Communication Equipment

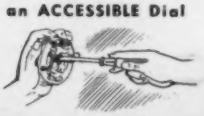
At Last—

a BEAUTIFUL Dial

The new Kellogg Master-Dial is distinguished and handsome throughout. The baked-on porcelain number plate has large, easy-to-read figures and letters. The finger plate has a permanent black baked enamel finish.

At Last—

an ACCESSIBLE Dial



No dial is so easy to install or maintain as the MASTER-DIAL. For example, you can adjust the tension spring without removing the dial from the telephone!

At Last—

a CONSTANT-RATIO Dial

Exhaustive tests, under actual operating conditions, conclusively prove the ability of MASTER-DIALS to maintain accurate "make-break" ratios through many millions of impulses without adjustment.

For More Details on the NEW KELLOGG Master-Dial

Turn the page

You can get the

Master-Dial NOW

on the new KELLOGG MASTERPHONES

In less than one short year, the Kellogg 1000 Series Masterphones have become the talk of the telephone world. These amazing new telephones, featuring years-ahead simplicity of design, interchangeability of universal parts and new accessibility, have been delivered to telephone companies everywhere.

Now, with the new Kellogg MASTER-DIAL as standard equipment, they are an even better buy. Now the new Masterphones are clearly superior in *every* respect.

The new MASTER-DIAL can be furnished with either metropolitan or straight numeral plate. The dial itself is mounted on the housing with easily accessible mounting screws. (By using the proper adapter ring, furnished by Kellogg, the new MASTER-DIAL is interchangeable on any telephone without further adaptation of any kind.)

If you haven't as yet gone over the Masterphone story with your Kellogg representative, by all means do so now. Interesting as the story was before, it will be even more interesting now that Masterphones are teamed up with MASTER-DIALS to give you the finest combination in telephone history. Phone or write us today to arrange a get-together at the earliest possible date.

SINCE 1897 KELLOGG

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

6650 South Cicero Avenue, Chicago 38, Illinois

WHERE ENGINEERING AND RESEARCH BUILD FINER COMMUNICATION EQUIPMENT

COURTS and COMMISSIONS

Two Indiana Companies Ordered to Improve Plants

Two decisions in telephone company service complaint cases were handed down recently by the Indiana Public Service Commission.

The Greene County Telephone Corp., Hope, was ordered to place orders for equipment necessary to make the repairs and replacements mentioned in the 15 recommendations of the commission's engineering department. Commission engineering fees assessed to the company amounted to $90.24. The Honey Creek Mutual Telephone Co., Prairieton, was ordered to make plant repairs as specified by the commission engineers and render a satisfactory service within 120 days of the approval of the order. Engineering costs in this case were $58.06.

Another petition, that for an investigation of service rendered by the Akers Telephone Co., Odell, was heard by Examiner Crasher of Crawfordsville on September 3.

The petition of the Sunman (Ind.) Telephone Co., filed September 14, has not as yet been set for hearing.

V V

FCC Clarifies Exemption Of Communications Act

In a recent letter to the Northern Ohio Telephone Co., Bellevue, Ohio, the Federal Communications Commission has thrown some light on the question of whether an Independent company exempt from its jurisdiction under Section 2(b)(2) of the Communications Act will lose its exemption status if it uses radio to supplement wire telephone service.

Last May the Northern Ohio company filed application for an experimental license to provide radio-telephone service between Port Clinton and Kelley's Island on Lake Erie, a distance of 13 miles, with 15 watts of power and directional antenna.

When transmitting the application, William C. Henry, president of the Ohio company, expressed the view that the proposed radio use would not interfere with the company's status as a carrier exempt from FCC jurisdiction. He stated that if the commission had a different opinion, the application should be considered as withdrawn. It is in response to this letter that the commission now has advised that the exemption under the circumstances involved would not be destroyed. The commission's letter, dated September 19, reads as follows:

"The commission has noted the statement in your letter of May 16, 1946, concerning the status of your company as a 'connecting carrier' under Section 2(b)(2) of the Communications Act. Since the proposed radio operation will be point-to-point in nature, and only between the points within the same state, the commission is of the view, as presently advised, that the grant of the foregoing applications will not alter your company's present status under the act. However, it should be noted that the commission's formal determination of the status of this company as being only partially subject to the act was made in March, 1936, hence the conclusions expressed in this letter are not to be construed as constituting a further formal determination by the commission that your present operations, which may be different from those existing in March, 1936, necessarily are such as to entitle your company now to the status of a connecting carrier under Section 2(b)(2) of the act."

V V

50-Cent Rate Boost Granted Georgia Independent

A 50-cent monthly rate increase per station for unlimited telephone service effective October 1, was granted August 29 to L. Parker, owner of the Farmers' Telephone Co., Springfield, Ga., who had petitioned the Georgia Public Service Commission for the rate boost more than 15 months ago.

Authority to increase the cost of rural service was denied pending rehabilitation of lines necessary to render satisfactory service, and permission to make a toll charge for messages transmitted between the Farmers' company at Springfield and the Effingham Telephone Co., Guyton, Ga., likewise was denied.

These requests had been made by Mr. Parker at a hearing held June 27, 1945. Subscribers to the Farmers' company, through their counsel, had protested the toll charge, stating that free service between the two exchanges long had been in effect and that service improvements should proceed any rate increase.

Mr. Parker submitted data to show he had made and was contemplating adding improvements; likewise he showed figures to prove he had been operating the business at a loss of about $1,000 a year.

The commission engineers' report, following an inspection August 27, 1945, which Mr. Parker requested, showed considerable improvement in the over-all condition of the property had been made, and that efforts were being made to rehabilitate the exchange plant. The commission's opinion was that considerable further improvements were necessary to render satisfactory service by the Farmers' Telephone Co. and it postponed a decision on Mr. Parker's petition pending further improvements.

At Mr. Parker's suggestion, another inspection was made June 17, 1946, and revealed that considerable work had been done to improve the service. The following rates, therefore, were granted for unlimited telephone service at Springfield:

Business, individual line.....	$3.50
Business, party line.....	3.00
Residence, individual line.....	2.50
Residence, party line.....	2.00

V V

Grants New Jersey Bell Franchise

The New Jersey Board of Public Utility Commissioners on October 1 approved an ordinance in the application of the New Jersey Bell Telephone Co. granting permission and consent to that company to use all of the various streets, roads, avenues and highways in Bradley Beach, Monmouth County, both above and below the surface for the construction, maintenance and operation of its local and through lines and systems in connection with the transaction of its telephone business.

The application of the New Jersey Bell company was filed with the New Jersey commission August 27 and its

authorization repeals an ordinance in the name of the New York Telephone Co., predecessor in interest of New Jersey Bell Telephone Co., enacted on October 31, 1910, by the board of commissioners of the Borough of Bradley Beach which provided for the same rights and privileges as set out in the recent application.

V V

Bertrand, Neb., Company Constructs New Building

Work has been started by the Bertrand (Neb.) Telephone Co. on a new building to house the dial equipment that has been ordered.

Neil Schreck, manager of the company, expects to be able to make the change-over by the first of the year. The switchboard and pay-stations have been delivered, and telephone equipment has been promised for next month.

V V

Crook, Colo., Company Gets Convenience Certificate

The Public Utilities Commission of Colorado on September 27 granted the application of Russell S. Henry, Crook, for a certificate of convenience and necessity to operate the Crook (Colo.) Telephone Exchange and to serve the rural population outside of the limits of Crook.

In its probe, the commission found that the original cost of the Crook system was approximately $5,000; its present-day value is $800. The applicant stated that he expects to spend about $10,000 in improving the entire system.

The exchange now has about 50 subscribers and has been operating for many years without having applied for a convenience certificate. The company initially was inaugurated by M. G. Johnson, later was purchased by Raymond F. Fortner, who subsequently turned over operation to Mrs. Eva Todd. Mrs. Todd operated the exchange until April, 1941, when the exchange was purchased by Mr. Henry from Mr. Fortner.

The Mountain States Telephone & Telegraph Co., which also serves the area being served by the Crook company, has signed a stipulation with the Crook company, covering the respective rights of the two companies.

No one appeared protesting the application and statements were received from the town of Crook recommending that the certificate be granted.

The commission ordered Mr. Henry to file rate schedules, rules and regulations and set up his books and accounts and in all respects bring his practices into compliance with the commission's requirements, within 30 days from date of the order. Failure to comply with this provision will nullify, at the end of the 30 days, the authorization granted.

The commission order of September 27 is to become effective October 17.

V V

Asks Cessation of Toll-Free Service at Greenwood, Va.

The Virginia State Corporation Commission September 26 took under advisement a request by C. D. L. Perkins, operator of the Greenwood (Va.) Telephone Exchange, that toll-free service on his line between Greenwood and Waynesboro be eliminated.

Mr. Perkins, who purchased the Greenwood exchange in early 1945, told the commission that he inherited a system whereby 50 of his 82 subscribers were on a line providing service between the towns—but no tolls resulted. The remainder of the subscribers, he said, paid a toll of 10 cents for each call into Waynesboro.

The exchange operator charged that the system not only resulted in discrimination against the 32 paying customers—it cost him $750 last year to operate his company.

V V

Oklahoma Properties Change Hands

The Oklahoma Corporation Commission has granted the application of R. C. Simpkins, doing business as the National Telephone Co., for the sale to the Southwestern Bell Telephone Co., of his toll line between Ada and Fittstown, Okla.

The telephone exchange at Fay, Okla., recently was sold to Verna Coker. The exchange has about 80 telephones and was owned by Leo Dalrymple, manager of the Foss (Okla.) Telephone exchange.

V V

Seek Sale Permission

The Federal Communications Commission has set October 25 for hearing of the joint application of Betty Jane Williams, et al, doing business as Milton Telephone Exchange, and Southern Bell Telephone & Telegraph Co., for certificate that the proposed acquisition by the Southern Bell Telephone & Telegraph Co. of the telephone plant and property of the Milton Telephone Exchange will be of advantage to the persons to whom service is to be rendered and in the public interest.

Rate Increases in Kentucky Asked by Southern Bell

Pleading that increased operating costs have reduced net earnings to 1.83 per cent, the Southern Bell Telephone & Telegraph Co. October 1 applied to the Kentucky Public Service Commission for rate increases for 156 towns in 96 Kentucky counties.

Chairman Charles E. Whittle set the case for hearing November 7. The commission, he said, will notify all county judges and mayors in the Kentucky territory served by Southern Bell.

The company estimated its present facilities in Kentucky aggregate $40,000,000 and said it expects to add $35,000,000 in a five-year program. The facilities have been increased by $10,000,000 since 1939, the company said.

The application does not show how much the proposed increases would amount to in a lump sum, but generally the two principal changes sought are 75 cents a month more for business telephones and 25 cents a month more for one-party residence telephones.

Two basic increases are sought in long distance calls. They are: Person-to-person, five cents more in the base rate for up to 172 miles; station to station, five cents more in the base rate between 19 and 112 miles. Comparable increases are sought, also, in additional time periods of long distance calls, and 25-cents-a-month additional is asked for business telephone extensions.

No increase was asked in rural rates. Notwithstanding, the Farm Bureau Federation announced plans to fight the application if and when Southern Bell introduced it.

The application was filed by J. M. McAlister, Louisville, Ky., manager for Southern Bell. Chairman Whittle said he understands similar applications are being filed in the eight other southern states served by Southern Bell.

The application was prefaced with a general statement of Southern Bell's business position. Among the points made were:

(1) From December 31, 1939, to August 31, 1946, the number of telephones increased in Kentucky from 129,491 to 212,516, up 64 per cent. The monthly average of toll messages jumped from 429,183 in 1939 to 1,007,684 in 1946, up 135 per cent.

(2) Total revenue from Kentucky business increased from $6,963,765 in 1939 to $13,073,448 estimated for 1946, up 88 per cent. But in the same period, expenses jumped 118 per cent, from $5,676,753 to $12,357,876.

(3) Despite an increase of $9,500,000 in capital investment since 1939, net earnings have dropped to 1.83 per cent—from $1,287,012 in 1939, to $715,572 estimated for 1946.

(4) Gross payroll of April through

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Telephone and Telegraph

WIRE and CABLE

AND MISCELLANEOUS ITEMS

USED—UNUSED

Originally costing approximately three million dollars and located at Belle Mead General Depot, Belle Mead, New Jersey

Listings completely describing the material are now available at any War Assets Administration Regional Office. Ask for "WA Listing No. L-48, October 17, 1946" which contains detailed information about condition and how to obtain permission to inspect the material. This listing also contains an order form which *must be used* for the submission of all orders.

The equipment and parts are unpackaged (although most cable is on reels), but will be packaged after sale, when necessary, for shipment.

All sales are subject to the standard condition of sales of the War Assets Administration and will be for cash, check, cashier's check or money-order, unless credit terms have been arranged.

Federal Agencies have had the opportunity to fulfill their needs. Veterans of World War II should apply at their nearest WAA Certifying Office for certification; the case number shown on the certificate and the location of the Certifying Office must be stated in the Veteran's "offer-to-purchase".

This surplus property is announced concurrently at fixed prices to all priority claimants and to commercial dealers. After certified Veterans' requirements have been filled, other orders received by November 6th, 1946 will be filled in the following sequence: R.F.C. for resale to small business, state and local governments and instrumentalities, certified non-profit organizations and commercial users.

Unlimited orders are accepted. The right is reserved to reject any or all orders. All orders should be sent to War Assets Administration, 70 Pine Street, New York 5, N. Y., telephone WHitehall 3-3640.

WAR ASSETS ADMINISTRATION

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Offices located at: Atlanta • Birmingham Boston • Charlotte • Chicago • Cincinnati Cleveland • Dallas • Denver • Detroit • Fort Worth • Helena • Houston • Jacksonville Kansas City, Mo. • Little Rock • Los Angeles Louisville • Minneapolis • Nashville • New Orleans • New York • Omaha Philadelphia • Portland, Ore. • Richmond St. Louis • Salt Lake City • San Antonio San Francisco • Seattle • Spokane • Tulsa

784

August in 1939 amounted to $1,174,012, as compared to $3,542,704 for the same period in 1946, an increase of 202 per cent.

"A large portion of this increase in payroll results from increases in wage rates made in conformity with national policy and trends during this period," the application stated.

The application next presented plans for future expansion.

The application estimated 1946 cost of additions at $5,559,000. As much or more will be required for "each of the next several years," it stated.

"Applicant's ability to obtain this money at reasonable costs," the application continued, "depends upon its earnings being sufficient to maintain an adequate credit position."

The application cited these figures as indicative of the downward trend in Southern Bell's net earnings in Kentucky:

(1) Year of 1945—2.99 per cent.
(2) First quarter, 1946 — 2.90 per cent.
(3) Second quarter, 1946—2.27 per cent.
(4) July and August, 1946—1.18 per cent.

The present rate of return was termed "grossly inadequate and insufficient to meet (applicant's) reasonable needs."

V V

Higher Rates for West Virginia Independent

The Duncan Telephone Co.'s petition for higher rates was granted October 2 by the Public Service Commission of West Virginia, which added the proviso that the company must extend 24-hour service to two additional towns it serves in Tucker County.

Present service at exchanges in Davis and Thomas, W. Va., is from 7 a. m. until 10 p. m. Parsons already has 24-hour service.

The new rate scale will range from $3.50 a month for business subscribers to $1.85 for a four-party residential telephone.

Present annual Duncan company rates are $30 for businesses, $21 for residences and $18 for party lines.

V V

Improve Service or Sell, Virginia Company Told

The Fredericksburg & Toluca Telephone Co. in Stafford County, Va., has been instructed by the Virginia State Corporation Commission to improve its services or to sell its lines by October 15, an official of the company said.

Lincoln T&T Revises Tariff

The Nebraska State Railway Commission has granted the request of the Lincoln (Neb.) Telephone & Telegraph Co. to revise its exchange supplemental service tariff at Davey by deleting a provision for purchase of additional service to the Ceresco, Neb., exchange.

V V

Higher Rates Sought

The Leedey (Okla.) Telephone Co., with about 150 subscribers, has applied to the Oklahoma Corporation Commission for an increase in its rural switching rate out of Leedey from $4.00 to $6.00 per month. The application had not yet been set for hearing.

V V

Join Illinois Commercial

Nineteen former Independent telephone subscribers of a switch line out of Albion, Ill., signed up for service with the Illinois Commercial Telephone Co. and were cut in September 30, L. R. Leach, district manager of the Illinois Commercial company, said.

V V

Service Improvements Asked

The Illinois Commerce Commission recently directed the Mississippi Valley Telephone Co., Carthage, to show cause why it should not improve service.

V V

Summary of Commission Rulings and Hearings

Federal Communications Commission

September 13: Granted Mutual Telephone Co. authority to take depositions in Honolulu, T. H., in connection with application for construction permit for new fixed point-to-point radio-telephone station at Oahu, T. H.

September 26: Granted American Telephone & Telegraph Co., Long Lines Department, authority to operate a line of the Carolina Telephone & Telegraph Co. between Selma and Dunn, N. C.

September 30: Granted American Telephone & Telegraph Co., Lawrenceville and Ocean Gate, N. J., special temporary authority to December 1, 1946, using regularly licensed equipment, 80 kw. peak envelope power, A3 emission on frequencies 19410 conditionally and 19790 kc. Granted same, on frequencies 13427.5 and 13442.5 kc conditionally. Granted same, on frequency 12947.5 kc.

October 3: Amended order of March 18, 1946, thereby removing Michigan Bell Telephone Co. as applicant in File No. PC-1059A concerning construction.

October 3: Authorized American

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lead-encased telephone ca
Kennecott Telephone Cable is made
conductors of from 16, 19, 22, 24, an
AWG.
Each wire is insulated with one or
wraps of manila paper, or paper made
clear rope stock with suitable propor
of wood pulp or cotton rag stock adde
The paper is wound loosely in helical
around the wire. When two or more pa
are used, they are applied in re
direction.
Dry paper is used because of its low
cific inductive capacitance, which
further reduced by the air space introdu
by the loose wrapping.
After insulation of the conductors, they
twisted together to form pairs, each
of a pair being wrapped with paper
different color for tracing purposes.
The twisted pairs are cabled togethe
layers, each layer being one pair th
Alternate layers are cabled in opp
directions. The completed cable co
taped over with paper.
After removal of moisture by heat,
cable is then sheathed with lead contai
1% antimony.
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build for permanence and economy *with poles bearing this trade-mark*

The T. J. Moss Tie Company's creosoted southern yellow pine poles are time-proven.

Every pole is full-length pressure-treated in accordance with American Wood Preservers' Association specifications.

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THE STAMP OF CHARACTER

long life telephone dry cells

"Eveready" "Columbia" "Gray Label"

Higher sustained voltage . . . longer life . . . rock-bottom economy—these qualities are assured through the constant supervision of America's largest dry battery laboratory.

Made by the makers of the famous "Eveready" "Air Cell" Operators' Transmitter Batteries.

THE QUALITY CELL PREFERRED BY TELEPHONE ENGINEERS

save time and money with

roll-a-reel!

STYLE "B"

For two reels 24" wide, or one reel 48" wide.

Also available in Style "A" for single reels up to 28" wide

Heavy reels of wire, cable, steel strand, or rope can be dispensed with amazing rapidity, safety, and convenience from Roll-A-Reel. Heavy, adjustable ball-bearing rollers provide friction-free reeling despite variations in reel diameter. Simple, toe-operated spring lock makes reel removal easy. Reel may be dispensed from front or back, top or bottom.

- Heavy gauge steel frame, capacity 4,000 lbs.
- Two independent sets of rigidly aligned ball-bearing rollers, with separate toe-operated spring lock for each, make reel removal easy.
- Low, slanted front for easy loading or unloading; no jacks or other troublesome devices necessary.
- Width 52", depth 28", height 4", weight 110 lbs.
- Simple, sturdy, light-weight. Stands upright in any end position for safety and convenience.
- Built for years of service.

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O 6, 8. SAN FRANCISCO 3. IN CANADA: STROMBERG-CARLSON COMPANY LIMITED, TORONTO

Telephone & Telegraph Co. to construct and operate facilities between Standish and Charlevoix, Mich., and other points.

October 4: Adopted order scheduling oral argument before the commission October 18 in the matter of use of recording devices in connection with telephone service.

California Railroad Commission

September 27: Issued order to Colorado River Telephone Co., Blythe, authorizing it to increase rates for directory advertising.

September 27: Issued order authorizing Kerman (Calif.) Telephone Co. to establish rates for public pay-station service.

Georgia Public Service Commission

October 23: Hearing on show cause order to Southern Bell Telephone & Telegraph Co. and 115 Independents concerning speeding up toll calls.

Illinois Commerce Commission

October 8: Hearing on request of St. Paul (Ill.) Telephone Co. for authority to increase rates.

October 8: Hearing on request of Citizens Mutual Telephone Co. for authority to increase rates at Cambridge, Henry County.

October 9: Hearing on request of Fruitville Telephone Co. for authority to increase rates at Villa Ridge, Pulaski County.

Kansas Corporation Commission

October 21: Hearings on applications of Esbon (Kan.) Telephone Co. for authority to make rate changes at Esbon and discontinue free service from Esbon to Ionia.

October 28: Hearing on application of Woodbine (Kan.) Cooperative Telephone Co. for authority to make rate changes.

Oklahoma Corporation Commission

October 9: Hearing on application of R. L. Hoover and others living north of Oklahoma City, asking for connection with the Oklahoma City exchange of Southwestern Bell Telephone Co.

October 9 and 10: Hearing on application of W. H. Yost, J. A. Wilkie and others for telephone connections with the Southwestern Bell Telephone Co. at Oklahoma City.

October 16: Hearing on application of Mutual Telephone Co. for increased rates at Okeene.

November 6: Hearing on application of Fletcher (Okla.) Telephone Co. for increased rates.

November 6: Hearing concerning request of citizens of Stroud for order requiring Oklahoma Telephone Co. to render adequate service there.

November 6: Hearing on application of Ed Jackson et al., for adequate service on rural line of Southwestern States Telephone Co. out of Purcell.

November 6: Hearing on application of Wynona (Okla.) Telephone Co. for increased rates.

November 6: Hearing on application of Butler (Okla.) Telephone Co. for increased rates.

November 6: Hearing on application of Blanchard (Okla.) Telephone Co. for increased telephone rates.

November 6: Hearing on application of Panama (Okla.) Telephone Co. for increased rates.

November 6: Hearing on application of Foss (Okla.) Telephone Co. for increased rates.

November 6: Hearing on application of Fay (Okla.) Telephone Co. for increased rates.

November 6: Hearing on application of Ames (Okla.) Telephone Co. for increased rates.

November 7: Hearing on application of Fred Barrett for order on Oklahoma Automatic Telephone Co. to restore service at Clarita. Continued from July 16.

Wisconsin Public Service Commission

October 10: Hearing on complaint of Harry G. Jonas vs. Commonwealth Telephone Co., Madison, concerning telephone extension.

V V

Helpful Pamphlet Available

A pamphlet, entitled *What About the Telephone Wires?* illustrative of a couple planning a new home, can be obtained by addressing *Better Homes & Gardens,* Des Moines, Iowa. It might be helpful to telephone companies to have copies of this pamphlet on file to present to persons in their service areas who are contemplating building new homes.

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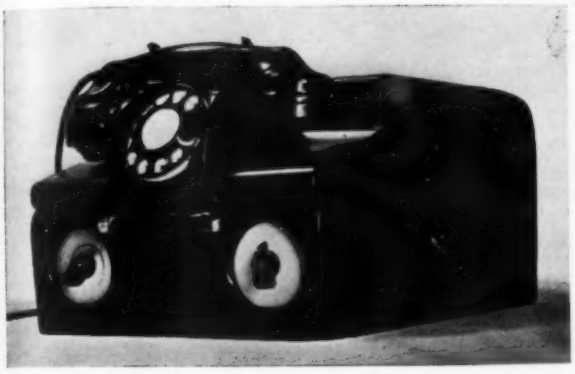

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NFTW "Hands Off" Bell System Employe Stock Purchase Plan

The executive board of the National Federation of Telephone Workers (NFTW) announced from headquarters in Washington, D. C., October 8 that it will take a "hands off" position regarding the new stock issue to be considered by American Telephone & Telegraph Co. stockholders at a meeting October 16. The NFTW claims to represent 300,000 telephone workers, mostly employed in the Bell System.

It has been the usual attitude of organized labor unions in the past to look askance at employe stock purchase plans. However, in view of the likelihood that Bell offerings to employes might become desirable market securities, observers saw in the neutral position taken by the NFTW a decision not to stand in the way of investment opportunities for members.

NFTW President J. Beirne said, "We recognize the responsibility of the board of directors and stockholders of the AT&T company to provide ways and means of raising capital to finance the company's operations."

Mr. Beirne said, however, that the stockholders had not at that time formally approved the plan. It was also noted that NFTW would continue to watch administration of the employe stock purchase plan to make sure that it does not violate the Wagner Act or become an anti-union weapon.

The AT&T plans call for issuance of convertible debentures increasing authorized stock from 25,000,000 to 35,000,000 shares, permitting employes to purchase up to 2,800,000 shares.

V V

Northwestern First University To Have Mobile Service

Northwestern University, Evanston, Ill., was expected to become the first university in the country to acquire a mobile telephone for automobile use.

The mobile telephone was to be installed in the automobile of Maurice Ekberg, superintendent of buildings and grounds, who will use the telephone in directing the work of his department's 247 electricians, plumbers, handymen, janitors and steamfitters.

V V

C. D. Manning to Attend Navy's Orientation Course

At the invitation of Secretary of the Navy Forrestal, C. D. Manning, vice president, Kellogg Switchboard & Supply Co., Chicago, will attend a Navy Civilian Orientation Course to be presented October 22 to November 1 at Columbia University, New York City.

Given under the auspices of the U. S. Naval Reserve Officers Training Corps, the course will explain the problems, plans and general operations of the Navy to prominent leaders of industry and the community. It also will afford members of the course an opportunity to bring before the various chiefs of bureaus, or their representatives, industry's problems in doing business with the Navy.

Speakers at the course will include high ranking naval officers who are competent to deal at first hand with the mutual problems of industry and the Navy. They will be able to stress the continuing questions which remain to be solved during this postwar period.

The course will include trips to the New York Naval Shipyard, the naval air stations and to the New London Submarine Base. A week-end cruise of a Navy capital ship is scheduled for October 25 to 27. Opportunities will be afforded to see various other types of naval craft in operation, and, weather permitting, will include a review of the fleet in New York Harbor and a short cruise and dive on a submarine.

The Navy will serve luncheon each day at the Faculty Club, and at these luncheons a distinguished officer of the Navy will give a short talk about his personal naval experiences.

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Telephone Service Down Mexico Way

(Concluded from page 16)

trica y Telefónica Fronteriza, S.A., other organizations are envisualizing future plans of expanding and the United States, by reason of its proximity and highly industrialized development, will play an integral role in this growth as these countries are dependent upon her for many basic materials. As an inevitable result, closer relationships will ensue between the United States and her neighbors to the south. For business firms that are aggressive, willing to make adjustments and willing to train the personnel for such a project, the opportunities are limitless.

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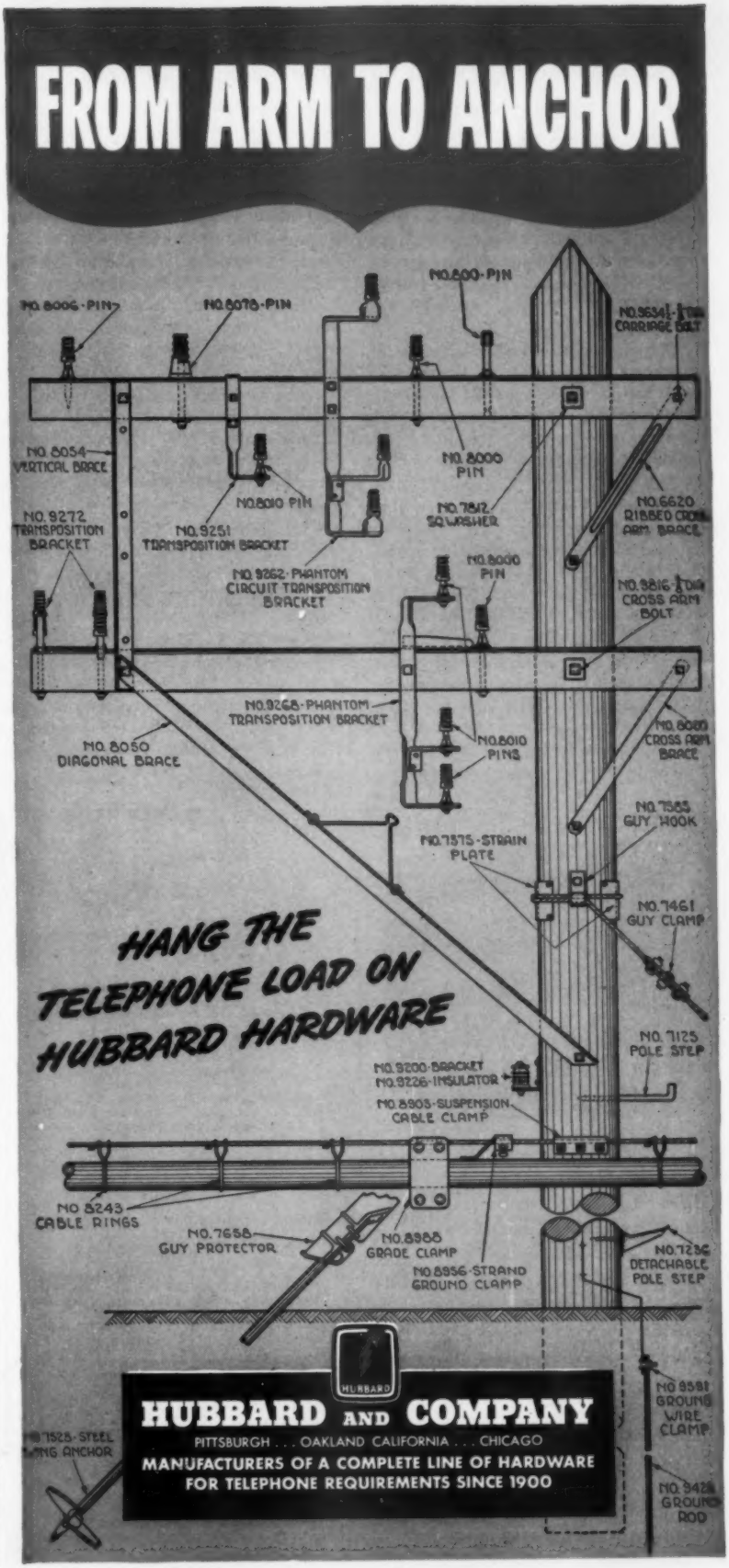
V V

Elect Bell Official Award Chairman

William V. Kahler, Chicago, vice president, Illinois Bell Telephone Co. and first vice president, Western Society of Engineers, recently was elected chairman of the Washington Award Commission for the year 1946-1947.

He has served on the commission as one of the representatives of the Western Society of Engineers since 1944.

The commission is charged with the duty of selecting the engineer whose professional attainments pre-eminently have advanced the welfare of mankind.



MOBILE RADIO-TELEPHONE TO LINK TEXAS CITIES

PLANS for mobile radio-telephone service covering principal Texas highways, linking together most of the larger Texas cities and serving scores of additional towns, were announced September 30 by the Southwestern Bell Telephone Co.

Applications have been filed with the Federal Communications Commission for authority to construct 21 land radio stations at various points along major east-west and north-south highways, and to install up to 500 portable mobile units.

This would make possible telephone communication with any suitably equipped mobile telephone vehicle anywhere along these routes from Louisiana almost to New Mexico, and from Oklahoma south to the Gulf of Mexico and the Rio Grande Valley.

It is one of the largest integrated highway mobile telephone systems for which plans have been announced by the Bell Telephone System and will cover, in addition to some 2,400 miles of primary highways, many thousands of miles of important secondary roads within range of the mobile system. The Texas system is planned to fit ultimately into other Southwestern Bell highway mobile systems in Oklahoma and Arkansas and finally into a national highway mobile telephone service.

Larger Texas cities that will be linked by the highway mobile system include Fort Worth, Dallas, Houston, Galveston, Beaumont, Port Arthur, San Antonio, Austin, Waco, Temple, Brownsville, Corpus Christi, Abilene, Sweetwater, Big Spring, Sherman, Denison, Marshall, Tyler and Longview.

Principal routes covered will be as follows:

Along U. S. Highway 75 from the Sherman-Denison-Gainesville area south through the Fort Worth-Dallas area to Houston and Galveston. Land radio stations will be constructed at Whitesboro, Grand Prairie, Powell, Buffalo, Huntsville, Houston and Galveston. The Whitesboro station will serve the Gainesville-Sherman-Denison area and the Grand Prairie station, the Fort Worth-Dallas area. The Powell station will serve the Corsicana area.

Along U. S. Highway 80 from Gilmer, in Upshur County, west through Dallas and Fort Worth to Odessa, in Ector County near the New Mexico border. Land stations will be located at Gilmer, serving Marshall, Longview, and Tyler; Greenville; Ranger, serving Mineral Wells and Cisco; Trent, serving Abilene and Sweetwater, and Big Spring and Odessa, serving the Big Spring-Midland-Odessa area. The land station at Grand Prairie, between Fort Worth and Dallas, will serve east-west traffic along this route as well as north-south traffic along Highway 75.

Along U. S. Highway 81 and part of U. S. Highway 77 from Fort Worth-Dallas to San Antonio. Land stations will be located at Waco, Temple, Austin and San Antonio.

San Antonio will be linked with the Rio Grande Valley by stations at Pettus, Robstown, San Manuel and Los Fresnos. The Robstown station will serve the Corpus Christi area, while the Los Fresnos and San Manuel stations will serve the Valley.

San Antonio also will be linked with Houston and the Beaumont-Port Arthur area by land stations at Weimer, Houston and Beaumont on U. S. Highway 90.

Construction of the system, estimated at $1,300,000, will begin as soon as possible after authority is granted by the FCC, and it is anticipated some of the stations will be in operation next year.

In addition to these plans for highway mobile telephone service, the company announced that in those cities where urban mobile telephone service systems were not already authorized, it is planned to offer both local and highway service over the new highway stations.

The Southwestern company has been granted authority for urban mobile systems in Texas at Dallas, Fort Worth, Houston, San Antonio and Austin. The system at Houston, now in the testing stage, will be the first to offer service on a commercial basis. A second land station will be constructed at Houston for the highway system, since the urban and highway service will operate on different frequencies.

However, the stations already authorized at Austin and San Antonio will be constructed to operate on a highway service frequency and will be

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used for both urban and highway mobile service.

Southwestern Bell was the first telephone company to offer mobile radiotelephone service, when an urban system at St. Louis began operating on a commercial basis in June of this year. The company also is cooperating with the Illinois Bell Telephone Co. in preparing highway mobile service for use between St. Louis and Chicago.

V V

Breda, Iowa, Farmers Co-Op Incorporates

The Breda (Iowa) Farmers Telephone Co-operative, which recently was organized, has had its articles of incorporation accepted by Wayne Ropes, secretary of state. (TELEPHONY, May 25, page 50.)

The membership is of considerable size and increasing very rapidly, and is expected to be one of the largest of its kind in the country, it was stated. A good number of appraisals of the property have been made and a certified public accountant has set up the books for the secretary-treasurer.

Officers of the co-operative are: G. J. von Glan, president; August Boeckman, vice-president, and A. F. Wilberding, secretary-treasurer. The other two men on the five-man board of directors are Walter Mohr and Floyd Hackett.

V V

BOOK REVIEW

Handbook for Telephone Managers and Engineers—Vol. I—by B. C. Burden. Publisher, Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill., 294 pages (illustrated). Price, $3.00, postpaid.

Rather than delay publication until the entire handbook could be completed, Automatic Electric Co. decided to issue it in two volumes. Volume I, now available for distribution, deals primarily with the design, construction and maintenance of outside plant, but also includes introductory sections containing mathematical and engineering data, formulas, tables and other material of a general nature.

The general scope of the first volume is indicated by the following list of section headings:

(1) Useful data.
(2) Electrical equations and computations.
(3) Telephone pole line.
(4) Open wire plant.
(5) Telephone cable plant.
(6) Underground telephone conduit.

Particular attention has been paid to the matter of illustrations which are plentiful, as well as clear, exact and easy to understand.

The publishers announce that the second volume, now in preparation, will deal with such subjects as transmission, protection, carrier equipment, substation apparatus, testing and the various classes and types of central office equipment. Every effort is being made to expedite the publication of this volume, the publishers state. The price and date of publication of Volume II will be announced later.

V V

Adds New Switchboard

John C. Roper and J. A. Green of the Roper Telephone Co., Rosebud, Tex., recently purchased a common battery switchboard. They plan to install new cable and telephones there.

V V

Graybar Names E. R. Yonkers Wolverine District Manager

The appointment of Edward R. Yonkers to the position of Wolverine district manager for the Graybar Electric Co., New York City, has been announced by Graybar's president, A. H. Nicoll.

Mr. Yonkers will make his office at Wolverine district headquarters in Detroit and will head Graybar activity

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E. R. YONKERS

in the Flint and Lansing areas as well as Detroit. Joining the Graybar organization in 1933 as a salesman in Wichita, Mr. Yonkers later was moved to Kansas City and became lighting manager there in 1939. The following year he was made manager of the outside construction and supply department, and in 1944 was promoted to manager at Omaha.

On June 1 of this year Mr. Yonkers took over the duties of assistant district manager at Detroit, serving under A. R. Maynard, retiring Wolverine district manager. Mr. Maynard has over 40 years of Graybar service to his credit and will remain on the job in an advisory capacity until November 1 when he will retire on a service pension.

V V

Kellogg Has Experimental High Frequency Station Permit

Kellogg Switchboard & Supply Co., Chicago, recently was granted a construction permit for a Class 1 experimental high frequency station by the Federal Communications Commission, according to an announcement made by F. M. Parsons, sales manager.

In presenting its construction permit application, the Kellogg company stated the firm was seeking portable and portable-mobile stations, using frequencies in the 30-40 megacycle band and 152-158 megacycle band with 30 watt power and for emission, A0, A1 and special FM and tone emission.

Kellogg's application also pointed out that the company's particular interest in its new experimental high frequency station was in the extension or improvement of communication facilities of telephone companies, fire and police departments, transit utilities, railroad companies and other concerns rendering public communications services.

Forthcoming experiments with the new Kellogg-Philco high frequency station will include studies of selective calling systems, efficiency of different antenna designs under conditions of varying terrain and antenna designs for use in areas containing physical and/or electrical obstruction to VHF radio signals. Other experimental work will include a search for some means of correlating radio transmission and reception with the wire facilities of telephone companies.

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